



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁵ : A63B 69/04	A1	(11) International Publication Number: WO 92/14520 (43) International Publication Date: 3 September 1992 (03.09.92)
---	----	---

(21) International Application Number: PCT/IT91/00025

(22) International Filing Date: 5 April 1991 (05.04.91)

(30) Priority data:
RM91A000105 13 February 1991 (13.02.91) IT

(71)(72) Applicant and Inventor: CARRAJANA DE ALMEIDA, Jorge, Humberto [PT/IT]; Via Pantano, 40, I-00012 Guidonia (IT).

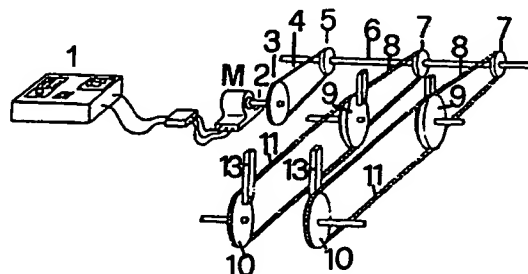
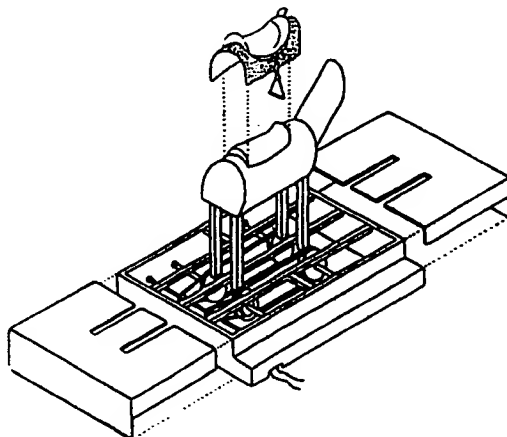
(74) Agent: MASCIOLI, Alessandro; A.N.D.I., Associazione Nazionale degli Inventori, Via Urbana, 20, I-00184 Roma (IT).

(81) Designated States: AT (European patent), BE (European patent), CH (European patent), DE (European patent), DK (European patent), ES (European patent), FR (European patent), GB (European patent), GR (European patent), IT (European patent), JP, LU (European patent), NL (European patent), SE (European patent), US.

Published

With international search report.

(54) Title: AN ELECTROMECHANICAL DEVICE FOR THE SIMULATION OF HORSE RIDING AT ALL TREADS



(57) Abstract

An electromechanical device for the simulation of horse riding, at all treads, having means for performing translation movements comprises: a control and regulation unit (1) for the rotation speed of an electric motor (M); a disk system (9, 10) having four disks to which four uprights (13) are connected in out of centre points (12) carrying a horse mock-up with a saddle; and a coupling system between the electric motor (M) and the disk system (9, 10) comprising a main axis (6), a first pulley-belt-system (3-5) between the electric motor (M) and the main axis (6) and a second pulley-belt-system (7, 8, 11) between the main axis (6) and the disk system (9, 10).

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	FI	Finland	MI	Mali
AU	Australia	FR	France	MN	Mongolia
BB	Barbados	GA	Gabon	MR	Mauritania
BE	Belgium	GB	United Kingdom	MW	Malawi
BF	Burkina Faso	GN	Guinea	NL	Netherlands
BG	Bulgaria	GR	Greece	NO	Norway
BJ	Benin	HU	Hungary	PL	Poland
BR	Brazil	IE	Ireland	RO	Romania
CA	Canada	IT	Italy	RU	Russian Federation
CF	Central African Republic	JP	Japan	SD	Sudan
CG	Congo	KP	Democratic People's Republic of Korea	SE	Sweden
CH	Switzerland	KR	Republic of Korea	SN	Senegal
CI	Côte d'Ivoire	LJ	Liechtenstein	SU	Soviet Union
CM	Cameroon	LK	Sri Lanka	TD	Chad
CS	Czechoslovakia	LU	Luxembourg	TC	Togo
DE	Germany	MC	Monaco	US	United States of America
DK	Denmark	MG	Madagascar		
ES	Spain				

"AN ELECTROMECHANICAL DEVICE FOR THE SIMULATION OF HORSE
RIDING AT ALL TREADS"

5

The present invention concerns an electromechanical device
for the simulation of horse riding at all treads, compris-
ing means for performing translation movements in front and
back direction on the sagittal plane, in all similar to
10 those of real horses.

The present invention takes its origin from the need of
having, in a gymnastic school, a simulator that allows the
beginners to perform all exercises for learning horse rid-
15 ing, and to advanced ones the training for increasing the
muscles of the legs (femoral biceps, iliac psoas), the up-
per and lower abdominal wall, the lumbar area and the long
muscles of the back.

20 A further advantage of the device according to the present
invention is that it allows the training for the general
coordination, essential in accompanying the movements of
the horse, and the eventual exhibition of experts in the
most different horse acrobatics.

25

The present invention, as claimed in the claims, solves the
problem of creating an electromechanical device for the si-
mulation of the riding steps of a horse like step, trot and

...i...

- 2 -

gallop, comprising a disk system being out of axis from the rotation centre which, by means of four uprights on which a mock-up of a riding horse is provided, make perform to said mock-up translation movements in front and back direction
5 on the sagittal plane, in all similar to those of real horses.

The present invention will be described more in detail hereinbelow relating to the attached drawings in which a preferred embodiment is shown.
10

Figure 1, shows an external perspective view of the device according to the present invention.

15 Figure 2, shows an exploded view of the components of the device according to the present invention.

Figure 3, shows a variant of the moving device of the mock-up of the riding horse.

20

The figures show an electromechanical device for the simulation of horse riding, at all treads, comprising:

- a control and regulation central 1 for the rotation speed
25 of the electric motor M;
- an electric motor M, the axis 2 thereof - through pulley 3, the belt 4 and the pulley 5 - puts into rotation the

.../...

- 3 -

motor axis 6;

- two pulleys 7 which, together with belts 8, put into rotation disks 9 and 10, connected by coupling belts 11;
- two disks 9 and two disks 10, put into rotation by the cinematic belt M-3-4-5-6-7-8, and connected in out-of-centre points 12 to the four uprights 13, out of one piece with the body C of the horse mock-up with a saddle S so that following to the rotation of the disks 9 and 10 said uprights rise and get down and said body performs translation movements in front and back direction on the sagittal plane.

For what concerns the working of the device according to the present invention, the regulation of the control central 1, by means of the cinematic belt M-3-4-5-6-7-8, determines different rotation speeds of the disks 9 and 10, so as to get, from a step tread, to a quicker one of trot and finally of gallop.

.../...

- 4 -

CLAIMS

1. An electromechanical device for the simulation of horse riding, at all treads, comprising means for performing translation movements in front and back direction on the sagittal plane, similar to those of real horses, characterized in:
- a control and regulation central (1) for the rotation speed of the electric motor (M);
 - 10 - an electric motor (M), the axis (2) thereof - through pulley (3), belt (4) and the pulley (5) - puts into rotation the motor axis (6);
 - two pulleys (7) which, together with belts (8), put into rotation disks (9) and (10), connected by coupling belts
 - 15 (11);
 - two disks (9) and two disks (10), put into rotation by the cinematic belt (M-3-4-5-6-7-8), and connected in out-of-centre points (12) to the four uprights (13), out of one piece with the body (C) of the horse mock-up with a saddle (S) so that following to the rotation of the disks
 - 20 (9) and (10) said uprights rise and get down and said body performs translation movements in front and back direction on the sagittal plane.
- 25 2. An electromechanical device according to claim 1 characterized in that the regulation of the contron central

.../...

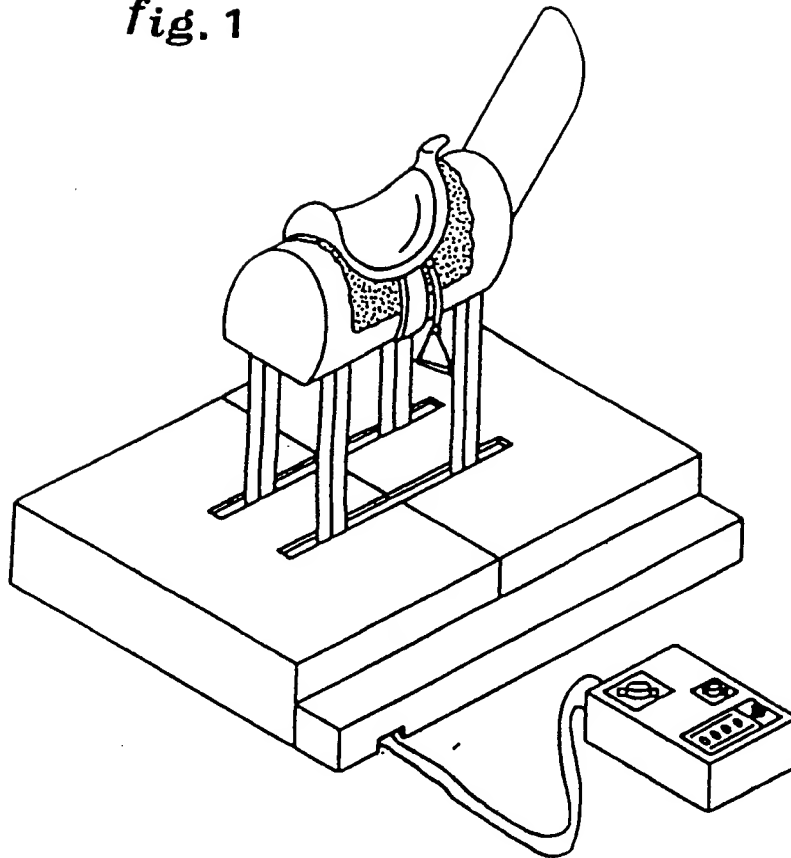
- 5 -

(1), by means of the cynematic belt (M-3-4-5-6-7-8), determines different rotation speeds of disks (9, 10) so as to get, from a step tread, to a quicker one of trot and finally to gallop.

.....

1/2

fig. 1



2/2

fig. 2

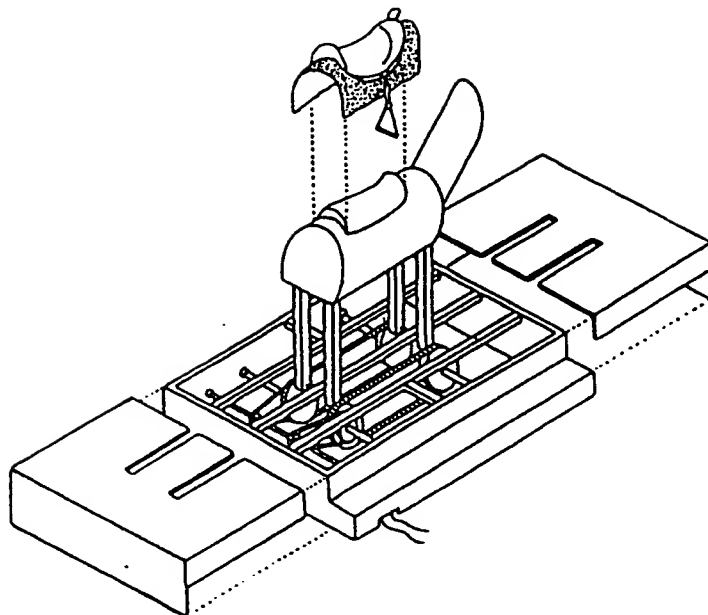
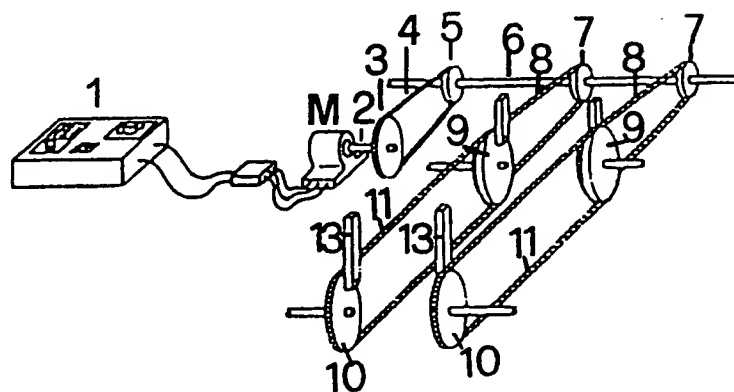


fig. 3



INTERNATIONAL SEARCH REPORT

PCT/IT 91/00025

International Application No

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)⁶

According to International Patent Classification (IPC) or to both National Classification and IPC

Int.Cl. 5 A63B69/04

II. FIELDS SEARCHED

Minimum Documentation Searched⁷

Classification System

Classification Symbols

Int.Cl. 5

A63B

Documentation Searched other than Minimum Documentation
to the Extent that such Documents are Included in the Fields Searched⁸III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹

Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	DE,A,3 941 498 (MEITEC CORP.) June 21, 1990 see page 2, line 44 - line 54 see page 3, line 15 - page 4, line 41 see page 5, line 7 - line 66 see figures 1-6 ---	1,2
A	US,A,1 791 777 (WEBB) February 10, 1931 see page 1, line 31 - page 2, line 54 see figures 1,2 ---	1,2

¹⁰ Special categories of cited documents:¹⁰ "A" document defining the general state of the art which is not considered to be of particular relevance¹⁰ "E" earlier document but published on or after the international filing date¹⁰ "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)¹⁰ "O" document referring to an oral disclosure, use, exhibition or other means¹⁰ "P" document published prior to the international filing date but later than the priority date claimed¹⁰ "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention¹⁰ "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step¹⁰ "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.¹⁰ "A" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search

Date of Mailing of this International Search Report

2

16 SEPTEMBER 1991

2. 10. 91

International Searching Authority

Signature of Authorized Officer

EUROPEAN PATENT OFFICE

Schönleben J.E.F.

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.**

IT 9100025
SA 46842

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

16/09/91

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE-A-3941498	21-06-90	JP-A- 2189171	25-07-90
		JP-A- 2195973	02-08-90
		JP-A- 2215483	28-08-90
		JP-A- 2228987	11-09-90
		JP-A- 2232078	14-09-90
		JP-A- 2161969	21-06-90
		JP-A- 2218379	31-08-90
		US-A- 4988300	29-01-91
US-A-1791777		None	